

## CLAIMS

What is claimed is:

1. A method for programming a mobile telephone over the air within a mobile telephone communication network, said mobile telephone communication network includes an over-the-air function, a customer service center, a mobile switching center, a base station controller, and a plurality of base transceiver stations, said method comprising the steps of:

sending a request over the air to a mobile telephone by one of said plurality of base transceiver stations within said mobile telephone communication network to interrogate said mobile telephone's protocol capability; and

in response to a detection of said request, responding with a protocol capability response message over the air by said mobile telephone to said one of said plurality of base transceiver stations, wherein said protocol capability response message includes a BAND\_MODE\_CAP field describing band and mode capability information of said mobile telephone.

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2. The method according to Claim 1, wherein said BAND\_MODE\_CAP field further includes an analog cellular band subfield, a digital cellular band subfield, and a digital personal communication service band subfield.

3. The method according to Claim 1, wherein said BAND\_MODE\_CAP field is utilized to generate a preferred roaming list and a number assignment module indicator block that are specific to said mobile telephone's capabilities.

4. The method according to Claim 1, wherein said protocol capability response message further includes a NUM\_SO field describing a number of service options available to said mobile telephone.

5. The method according to Claim 4, wherein said NUM\_SO field further includes at least one SERVICE\_OPTION field, wherein each SERVICE\_OPTION field indicates a service option supported by said mobile telephone.

6. The method according to Claim 5, wherein said at least one SERVICE\_OPTION field is utilized to initiate an appropriate provisioning of said mobile telephone.

7. The method according to Claim 5, wherein data from said BAND\_MODE\_CAP field and from said at least one SERVICE\_OPTION field are sent to said customer service center for a provisioning of a home location register.

8. The method according to Claim 1, wherein said mobile telephone communication network may be an advanced mobile phone service or a code-division multiple access mobile telephone communication network.

1 9. A mobile telephone communication system for programming a mobile  
2 telephone over the air within a mobile telephone communication network, said  
3 mobile telephone communication network includes an over-the-air function, a  
4 customer service center, a mobile switching center, a base station controller, and  
5 a plurality of base transceiver stations, said mobile telephone communication  
6 system comprising:

7 means for sending a request over the air to a mobile telephone  
8 within said mobile telephone communication network to interrogate said  
9 mobile telephone's protocol capability; and

10 means for receiving a protocol capability response message over the  
11 air sent by said mobile telephone, in response to a detection of said  
12 request, to said one of said plurality of base transceiver stations, wherein  
13 said protocol capability response message includes a BAND\_MODE\_CAP  
14 field describing band and mode capability information of said mobile  
15 telephone.

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1 10. The mobile telephone communication system according to Claim 9,  
2 wherein said BAND\_MODE\_CAP field further includes an analog cellular band  
3 subfield, a digital cellular band subfield, and a digital personal communication  
4 service band subfield.

1 11. The mobile telephone communication system according to Claim 9,  
2 wherein said BAND\_MODE\_CAP field is utilized to generate a preferred roaming  
3 list and a number assignment module indicator block that are specific to said  
4 mobile telephone's capabilities.

1 12. The mobile telephone communication system according to Claim 9,  
2 wherein said protocol capability response message further includes a NUM\_SO  
3 field describing a number of service options available to said mobile telephone.

1 13. The mobile telephone communication system according to Claim 12,  
2 wherein said NUM\_SO field further includes at least one SERVICE\_OPTION field,  
3 wherein each SERVICE\_OPTION field indicates a service option supported by said  
4 mobile telephone.

1 14. The mobile telephone communication system according to Claim 13,  
2 wherein said at least one SERVICE\_OPTION field is utilized to initiate an  
3 appropriate provisioning of said mobile telephone.

1 15. The mobile telephone communication system according to Claim 13,  
2 wherein data from said BAND\_MODE-CAP field and from said at least one  
3 SERVICE\_OPTION field are sent to said customer service center for a provisioning  
4 of a home location register.

1 16. The mobile telephone communication system according to Claim 9,  
2 wherein said mobile telephone communication network is a code-division multiple  
3 access mobile telephone communication network.

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1 17. A mobile telephone within a mobile telephone communication network,  
2 said mobile telephone communication network includes an over-the-air function,  
3 a customer service center, a mobile switching center, a base station controller,  
4 and a plurality of base transceiver stations, said mobile telephone comprising:

5 means for receiving a request over the air from one of said plurality  
6 of base transceiver stations within said mobile telephone communication  
7 network to interrogate said mobile telephone's protocol capability; and

8 means for sending a protocol capability response message over the  
9 air, in response to a detection of said request, to said one of said plurality  
10 of base transceiver stations, wherein said protocol capability response  
11 message includes a BAND\_MODE\_CAP field describing band and mode  
12 capability information of said mobile telephone.

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1 18. The mobile telephone according to Claim 17, wherein said  
2 BAND\_MODE\_CAP field further includes an analog cellular band subfield, a digital  
3 cellular band subfield, and a digital personal communication service band  
4 subfield.

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2 19. The mobile telephone according to Claim 17, wherein said protocol  
3 capability response message further includes a NUM\_SO field describing a  
number of service options available to said mobile telephone.

1 20. The mobile telephone according to Claim 19, wherein said NUM\_SO field  
2 further includes at least one SERVICE\_OPTION field, wherein each  
3 SERVICE\_OPTION field indicates a service option supported by said mobile  
4 telephone.

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